

# SYNTAX

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**Timex  
Sinclair  
news**

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**THANK YOU** for all your support, encouragement and business. SYNTAX is grateful to have so many perceptive subscribers.

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## IS TIMESTAR A DARK STAR?

After months of very loud speculation, plenty of wishful thinking, and innumerable missed deadlines, where is the Timestar? What ever became of the Trinity Magnum Co? Well, Timex says they get the odd phone call, but no real proposal, no funds to bind a deal, nothing to regard seriously. In short, no negotiation.

## SINCLAIR FORECAST

SYNTAX expects Sinclair Research to make some moves before the end of Apr.85. Recent rumbings in the rumor mill suggest it's grinding up something. Production and quality issues in the UK seem to be settling out. The CES showing included several new non-computer devices. UK magazines show Sir Clive's electric tricycle. The Spectrum+ trial balloon floats across the US. Sinclair's quietly talking to people in the US. This will all coalesce soon--SYNTAX will keep you informed.

## WILL JACKINTOSH JUMP ON QL?

Reports from CES in Jan.85 suggest that Atari will position it's 68000-based machine at the same price as Sinclair's QL. Later news of low earnings at Commodore suggest that they will bear the brunt of Atari's 8-bit attack early in the year and the 16/32-bit blast later may find Commodore unable to respond. This leaves the 16-bit MSX, Atari, and QL to win your computer dollars later this year.

Despite technical and feature differences of these machines, the battle will be won on marketing and product positioning. On the basis of experience, Jack Tramiel (Atari) does not usually lose these battles, Sinclair usually does, and the Japanese find a way to change the game.

Why will it be different this time?

## NEW PRODUCTS AND SERVICES

Tom Woods is so impressed with the MSCRIPT word processor that he sells it. Of course, Tom offers an enhancement--available only through him, & free with your MSCRIPT order--for 2040 printers or TASMAN interfaces. \$69.95 From Thomas B. Woods, POB 64 Jefferson, NH 03583. 603/586-7734 VISA/MC

Byte-Back offers new A/D converter. See hardware review in this issue. Also, they offer a Centronics Interface for ZX/TS or TS2068. The unit is cased, 5"Hx4"Wx1"T, & comes with software for the computer you specify when you order. The 4 1/2 foot printer cable is permanently attached to the interface. This is the only printer interface known to us that provides an extender card to attach other peripherals. Price \$84.95+\$4.95 P&H from Byte-Back Co. Rt 3, Box 147, Leesville, SC 29070 803/532-5812 VISA/MC

Also from Byte-Back, the MD-2B and MD-68 modems with Smart Software to send and receive programs by phone. These modems include an RS-232 port to drive your serial printer--no separate interface needed. \$119.95 kit or \$149.95 assembled +\$4.95 P&H

Tom Bent's 8K ROM modifications are available from Tom Woods, an EPROM that plugs into your ZX/TS & fixes bugs while providing an exit to your own LPRINT routine and much more (\$24.95).

"Powerful Projects with Your Timex/Sinclair" offers you designs and instructions for control projects. This new (1985) book tells you how to build a speech output module, a power controller, an interface connector, a temperature sensor and other I/O devices. For each, you get a schematic plus some hints on construction. Photos and sketches help you build these projects. Includes software descriptions to run

these devices. \$12.95, 256 pp. ISBN 0-673-18038-7 Author: Jim Stephens Publisher: Scott, Foresman & Co. 1900 E. Lake Av. Glenview, IL 60025

"D. LIPINSKI SOFTWARE BUYERS GUIDE TO SINCLAIR - TIMEX PRODUCTS & SERVICES" contains 800 software titles, 100 book titles, 100 hardware items and services such as publications. Data from 120 suppliers, published in 3-ring notebook format. Price includes first update in Mar.85. \$20 PPD in US & Canada, Overseas add \$1.50 for surface, \$5 for Air Mail. From D. Lipinski Software, 2737 Susquehanna Rd. Roslyn, PA 19001. 215/572-6812

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## HARDWARE REVIEW

Product: Analog-Digital Converter  
Machines: ZX81, TS1000, TS2068  
Price: \$29.95 + \$4.95 P&H  
From: Byte-Back Co.  
Rt 3, Box 147  
Leesville, SC 29070  
803/532-5812

Used with your BB-1 I/O board, this converter outputs 255 at 0 V down to 0 at the full-scale input voltage and puts the data in memory. You then read it out by peeking a memory location and use the data in your program.

Housed in a plastic tube about 1 inch in diameter and 4 1/2 inches long, this converter plugs atop the BB-1 with a built-in 50-pin connector. An RCA jack at the left end accepts the DC voltage you wish to measure, and a pushbutton at the right end resets your converter at start-up. Eight DIP switches, accessible through the front, set one of five full-scale ranges: 0.25, 0.50, 2.75, 5.00, or 10.0 VDC positive only. You can't open this device--it's epoxied together.

SYNTAX made only simple tests of operation on two ranges--2.75 V and 5 V. In both cases the device behaved as we expected, based on the manual which comes with it. Except for the 10-Volt range, each full-scale value is individually calibrated by Byte-Back for your converter. Our 2.75-V range is actually 2.78 V; our 5 is really 5.02. Since all SYNTAX's tests used a 1.5 V battery, we saw only the lower part of these scales.

Our converter consistently reads lower than the digital voltmeter by an amount that grows as the DC input increases. Thus, at 1.488 V input, the computer said we had 1.437 volts on the 5-V scale--about 50 millivolts low. But at 0.522 V input, the computer read

0.519 V, only 3 mV low. Similarly, the 2.75-V scale read 42 mV low at 1.492 V input and 9 mV low at 0.521 V input. Since 8-bit resolution only measures within 0.5% of full scale, these are reasonable errors.

Keep in mind that this A/D can only choose 1.471, 1.482, 1.493, or 1.504 when the input is 1.492 on a 2.75-V scale. Those are the 8-bit steps--spaced 0.0109 Volts apart. Similarly, resolution on the 5-V scale amounts to 0.0197 Volts. So you could probably get 2% accuracy with 0.5% resolution from this A/D at fixed temperature. Neither we nor Byte-Back express any opinion about temperature stability.

Since this device has parallel output, you use all input lines of your BB-1 when you connect the A/D. If you need digital inputs as well, you need another BB-1. But you can still use 8 digital outputs. In fact, you can use some to connect the converter to multiple inputs.

Well then, what use can you make of this device? Try it for applications where voltage changes are a few percent or more, but over a long interval. Or where fluctuations of your signal play a bigger role than the value. For example, a voltage in a piece of equipment with an intermittent problem.

Generally, this type of device serves best for automatic input of medium-accuracy data. For example, reading a voltage every 30 seconds for 4 hours or hourly for 7 days.

For best accuracy, store and process the bytes from the A/D. Then convert only the answer to the appropriate units.

Related reviews include the BB-1 Module (Jan.83,p.8) and the Votem A/D (Oct. & Dec. 82). Votem is a 0-1 V input, serial output A/D that connects through the cassette jack.



Dear Editor:

Many users that I know share a single complaint. US vendors for the TS2068 (as well as ZX/TS) don't advertise their products in any US Timex-Sinclair publication and, after we hunt them down, they don't deliver for months. Worse, they don't tell us when they'll deliver or warn us of delays. I mail-order software from England and have it in my hand in two weeks.

Some vendors don't even order the merchandise until they have our money--but they don't say this up front. When we write, we get no answer. If they even have a listed phone, they don't answer. If they have an answering machine, they don't call back.

As an industrial engineer I buy machines that take six months to deliver, I can deal with delay. But don't tell me you need two months and then take six. I waited from Jan. to May for a modem, then cancelled the order. In June, the company shipped it anyway and I refused it.

Our members are subscribing to English magazines to find ads for software we can buy and use. Good stuff, not trivia. Shipped, not vaporware. Serviced, not ignored. There are vendors who want our business, we'll give it to them.

Bob Dyl, Director  
Ocean State Users Group  
Newport, RI 02840

SYNTAX shares your concern for the rude (and often illegal) behavior of some vendors.

Locate & support the best & treat them honestly. Pay for what you use without exception. Three large UK software houses (Imagine, Rabbit, & Carnell) failed, despite product excellence, because of

rampant copying. Sinclair User magazine reports a class of 26, of whom 17 own computers. All had copied a game, only 3 had ever bought one--KO.

While John Slattery's system (VU-CALC review JUN.84 p 5) works, you can SAVE less and still have the necessary parts.

First, add CLEAR as the first command in line 3200. Then you SAVE "vc" CODE 29327,7000 to store the original MC program without data. You don't need the SCREEN\$ material it serves no computing function. (SCREEN\$ occupies 6912 extra bytes on the tape--KO)

Also, the program does not use all 37K without data. The BASIC part takes about 3K. The MC needs a little less than 7K--most space above RAMTOP holds data.

I modified line 10 and added line 9990 as shown here:

```
10 CLEAR VAL "29327": BORDER L
N PI: PAPER LN PI: INK 9: CLS :
PRINT FLASH 1;"Leave Tape Runnin
g as vcalc2 is being loaded.": L
OAD "vc"CODE : GO TO VAL "3200":
REM RLP mod 9/19/84
```

```
9990 SAVE "vcalc2" LINE 10: REM
rlp mod SAVE "vc"CODE 29327,7000
```

Does anyone know how we can create 8-character vcalc columns?

Robert L. Pekar, Columbus, IN 47201

I need to erase a MC routine, stored above RAMTOP, so I can use the space. For example, I use a fast-load program to load a large application program. The fast-load sits above RAMTOP, mine sits below. When big arrays are DIMmed, I run out of space. How can I clear the memory, but not lose my program?

H. Olsen, Prince Geo, BC V2N 2B2

You must move RAMTOP and ERR SP by poking the system variables, then execute 8 other pokes to recreate the 4 bytes just below RAMTOP at the new location & clear them from the old. You'll find the recipe to expand memory after a LOAD in the Jun.82 SYNTAX, p.15, with a crucial correction in Apr.83. Dave Wood gives a MC routine to move RAMTOP without erasing memory in his new book ML PROGRAMMING ON THE TIMEX-SINCLAIR (Reviewed Oct.84).

Before you expand the memory, you should POKE zeros from RAMTOP to the end of memory with a loop in BASIC, or write a small MC routine to do this. Dave Wood comes to the rescue again on p.64 of his book, showing how to use a ROM call to do this cleaning.--KO

I'm having two problems trying to use the program for ZX/TS Home Budget (from SQ, Spring 83) on my 2068. It won't auto-RUN, nor will it SAVE properly once my variables have been entered.

D. Brumfield, Jr, Roselle, IL 60172

Change line 9900 to the 2068 format SAVE "HOME BUDGET" LINE 100 (or wherever you want to go) and get rid of 9905. My guess is this change will cure both problems--KO

When I attach my 2040 printer to my ZX-81, and attach my 16K RAM I get only 8K of memory. Without the printer, it's fine. I've tried several computers and RAM packs; my problem follows the printer.

Peter D. Aronson, NY, NY 10036

You really know two things here-- the problem is with the printer and it's related to address, not data. You almost certainly have a shorted address line. It's above A8, since the 1K is unaffected, and below A14 & A15 which play no role with a 16K RAM. Look for a short on A9-A13.

Since all keys work (judged by the your sample program) I guess two address lines are shorted together. An open address line at the extension connector would also reduce the memory addressed.

Look for loss of shifted key functions in one or two half-rows when the printer is on the system. Shorts should affect the keyboard as well as the RAM. Opens leave the keys unaffected.

Try a program to find missing addresses. Convert these to binary values and look for bits that don't change. This will identify a specific address line and thus one pin on the connector.

Look in the Connector first, then inside your printer. If you diagnose an open, the problem can't be inside the printer--it must be in the connector on the printer--KO

I get no color with my 2068 on my Amdek C 300 monitor. They tried the monitor and they say it makes fine color. Amdek says the monitor jack on my 2068 may not be working.

Do I need some adapter between the monitor jack and the monitor? Could it be the cable?

Va. Stojanov, Mt. Laurel NJ 08054

TS 2068 color signals are not up to standard and may not work with some monitors and TV's. We have no word that Amdek monitors work, but the Sears TV/monitor definitely does work. Try your computer on one of these in the store. Use the cable you have now. If it works on both TV and monitor, you know the Amdek is the problem. If not, your 2068 needs repair, send it to the Timex Little Rock address in your manual.

Readers with information on TV and monitor performance with TS2068 computers may share it through SYNTAX. We'll publish a list.

## STYLE AND SPEED IN BASIC

When you write a BASIC program, the order in which you carry out your tasks affects the speed of your program. This routine lets you see simple examples that show how the same task can take 42 seconds at the front of a program, but 78 at the end. When you've seen these results, you may rethink your notion to put a screenful of REM's at the start of your program.

### ADDITIONAL SECONDS REQUIRED FOR 5000 GOSUBS AT SELECTED PLACES

		CALL TO		
		TOP	MID	BOT
CALL FROM	TOP	X	+6	+11
	MID	+12	+18	+23
	BOT	+25	+31	+36

Your 2068 and your ZX/TS (in FAST mode) take the same additional time for these tasks. For 2068's, X=42 seconds. In FAST, ZX/TS's take only 35 seconds because they use no time to control the screen. In SLOW mode, ZX/TS's will take 5-6 times longer--both the fastest time and the penalty get magnified.

SYNTAX measured these results using the listings reproduced here. Note that content of program lines is irrelevant--only the number of lines to skip affects the time. Also, these programs are not long, but we traverse them many times.

You can rerun these tests with your changes. We just changed the target of the GOSUB to 10, 700, or 1000 as desired. We always started with a clear screen and began the run with GOTO 2, 200, or 2000.

Next we wondered if FOR-NEXT loops would take variable times, so

we deleted lines 3, 300, and 3000, then tested. Sure enough, loops in the middle took 6 extra seconds and loops at the end took 11. Again, the 2068 came out a second slower.

SYNTAX suggests the following rules to make your programs faster when that's your goal. Remember, speed costs readability.

- o Locate setups, REM's, and seldom-used pieces at the end.
- o Put often-used items and their calling routines at the front
- o Minimize the number of program lines preceding loops.
- o Trade complex instructions for fewer lines preceding loops.
- o Avoid subroutines called a lot by a loop near the end of the program--repeat the code in the loop instead.

**Program shown runs on ZX/TS. For 2068, use lower-case variables and get a Syntactic Sum of 17683.**

```

2 FOR I=1 TO 5000
3 GOSUB 10
4 NEXT I
5 STOP
10 REM
99 RETURN
100 REM
110 REM
120 REM
130 REM
140 REM
150 REM
170 REM
180 REM
190 REM
200 FOR I=1 TO 5000
300 GOSUB 10
400 NEXT I
500 STOP
700 REM
799 RETURN
800 REM
810 REM
820 REM
830 REM
840 REM
850 REM
860 REM
870 REM
880 REM
890 REM
1000 REM
1999 RETURN
2000 FOR I=1 TO 5000
3000 GOSUB 10
4000 NEXT I
5000 STOP
SYNTACTIC SUM: 21850, 8K ROM

```



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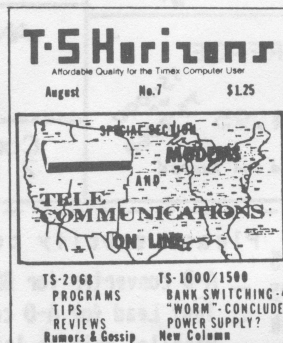
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